

2018



Betawell[®] Arabinose

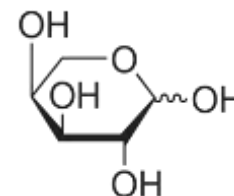
Scott Turowski
March 28, 2018

inspired by inulin.com



The study results and data contained in these slides have been developed by and/or for Sensus B.V. Sensus B.V. reserves the exclusive right to use the results and data for possible and/or potential Health Claim requests and/or applications.

About Arabinose



1. Naturally occurring C5 sugar
2. Produced from non-GMO sugar beet in a mild natural process
3. Arabinose has a sweetness profile of 60% of sucrose.
4. Available as high purity (> 99.0 wt%) white powder.
5. Caloric value is approx. 2 kcal/gr.
6. No adverse health effects reported in digestive system up to single dosages of 20 grams.
7. Product is self affirmed GRAS since June 2017, FDA GRAS status has been requested.



Advantages of adding arabinose

1. Inhibits the sucrase enzyme, slowing the digestion of sucrose in the body
2. Reduces the glycemic response of sucrose and prolongs the release of glucose.
3. Benefits supported by clinical research.
4. The processing advantages of sucrose are maintained.
5. No adverse health effects have been reported in the scientific literature nor during testing.



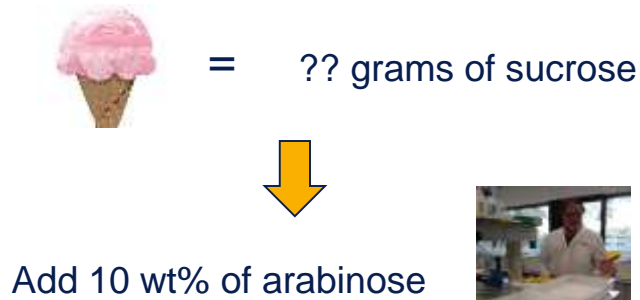
+

Betawell[®]
Arabinose

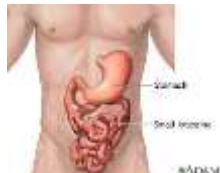
=



How does arabinose work?



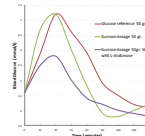
+



Arabinose inhibits sucrase enzyme in small intestine



Sustained energy release



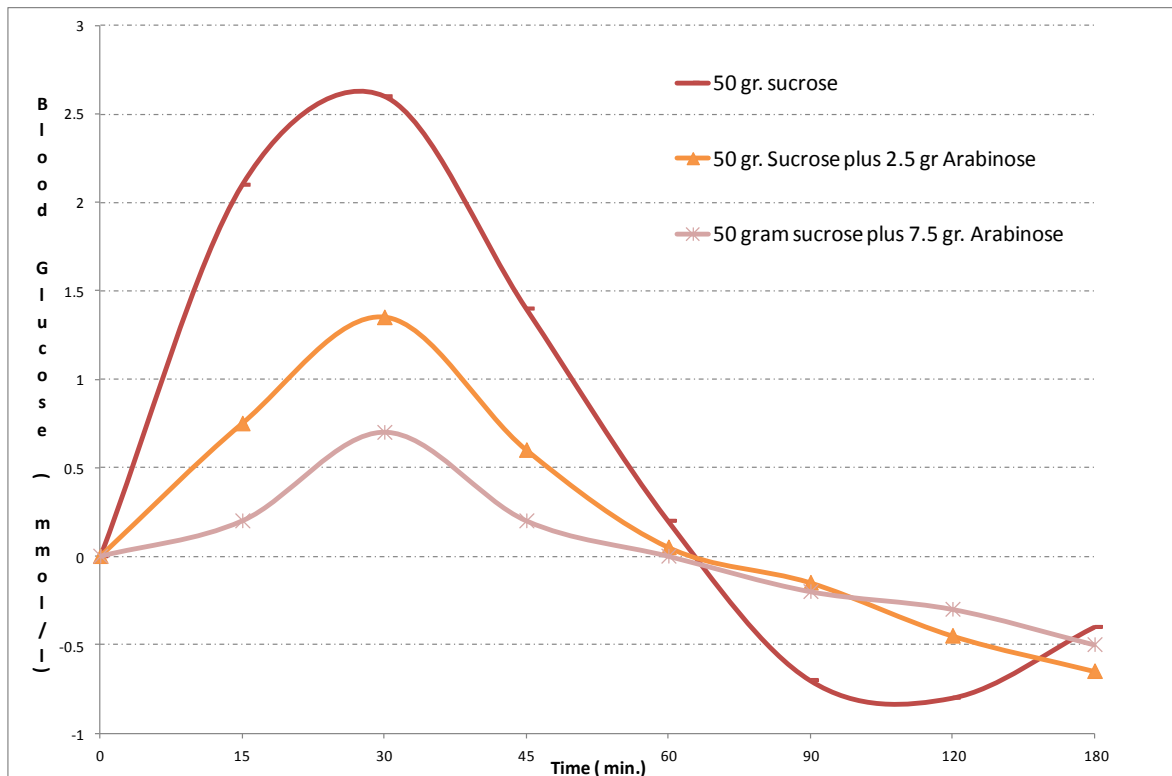
1. Prolonged satiety
2. Net energy reduction
3. Eat less in general



20 – 40% of sucrose may be digested in large intestine

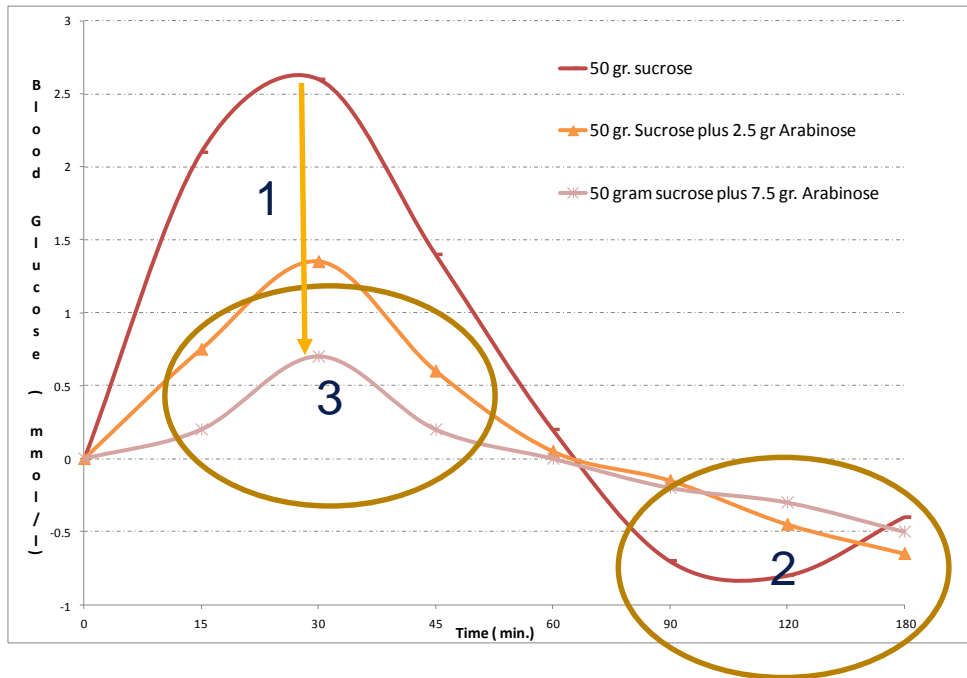
Glycemic response reduction

1. Reduces Glycemic response of sucrose
 - Dose dependent (Tested 5, 10 and 15 wt% replacement)
 - Test done at Oxford Brookes University



GI values:
GI(@5wt% ara) = 32
GI(@15wt% ara) = 24

Glycemic response reduction



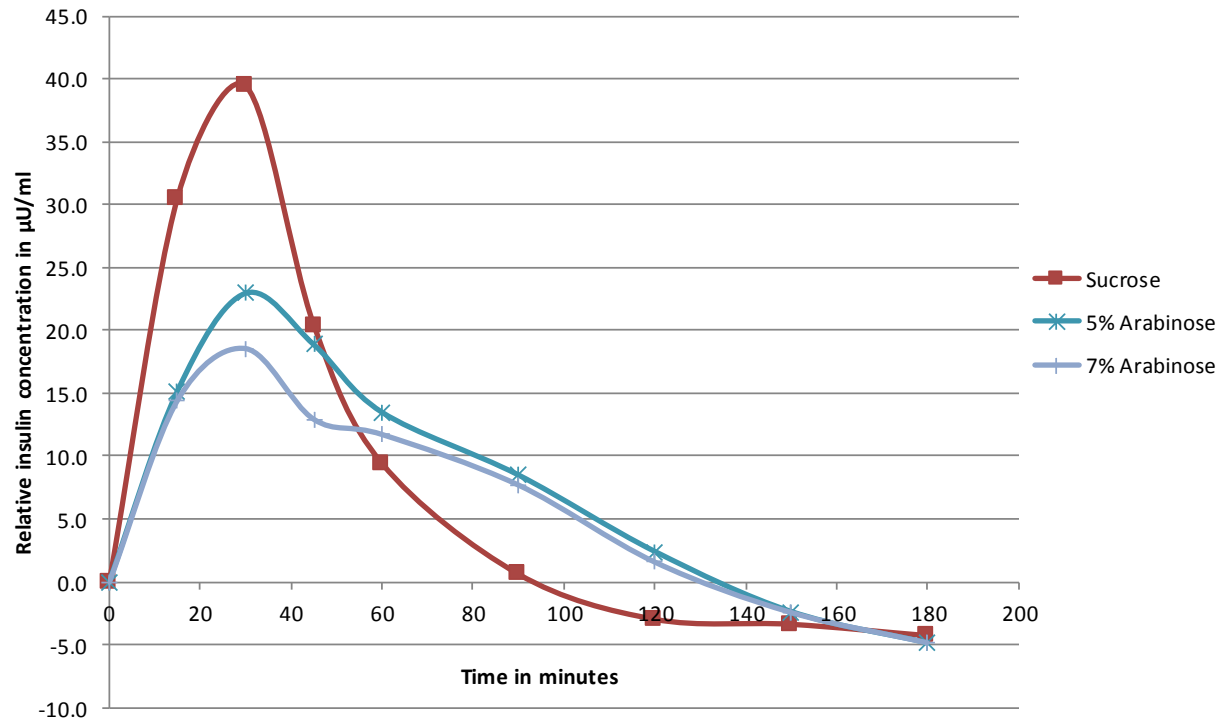
Explanation of advantages of Arabinose:

1. Reduction of glucose peak leads to smaller insulin production and associated fat formation.
2. Prevention of negative glucose peak leads to less desire for next consumption.
3. Overall reduction of glucose profile can lead to numerous positive health effects like reduction of heart diseases, lowering of blood cholesterol, lower chance for obesity and Diabetes II. Carbs with a low glycaemic profile are classified as good carbs.

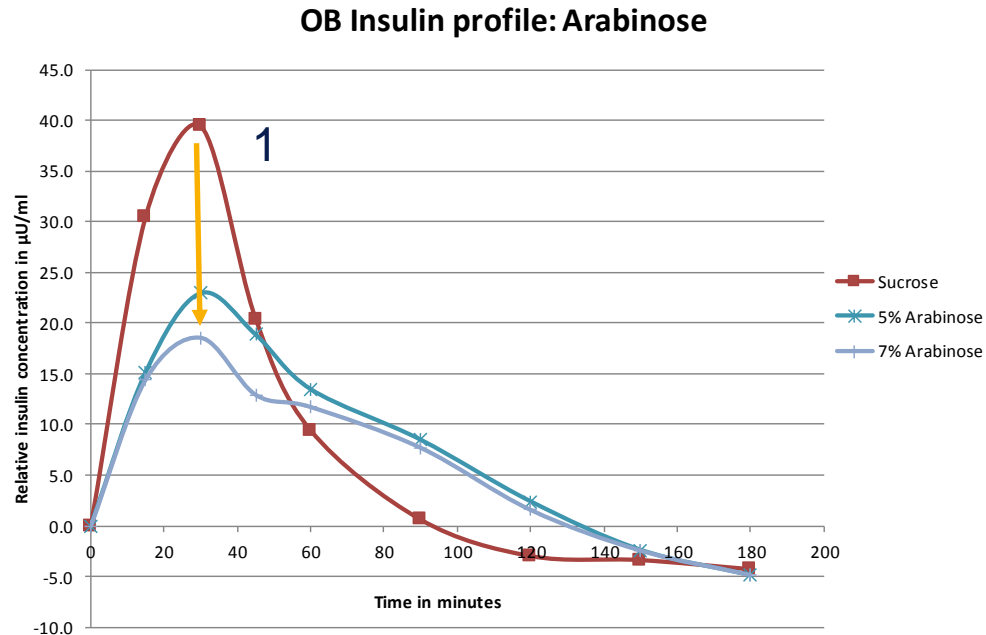
Reduced insulin response

2. Reduces Insulin response related to sucrose
 - Dose dependent (Tested 5 and 7 wt% replacement)
 - Test done at Oxford Brookes University

OB Insulin profile: Arabinose



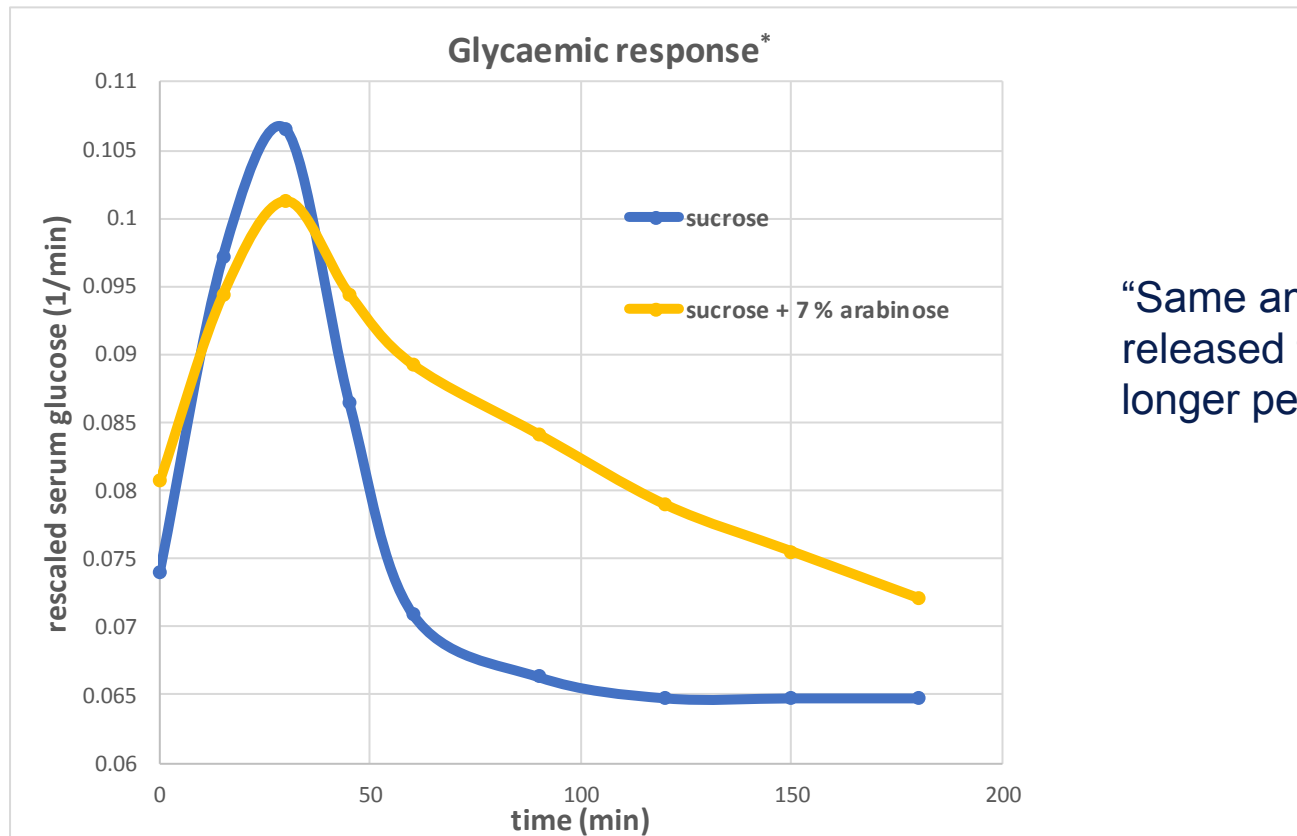
Reduced insulin response



Explanation of advantages of Arabinose:

1. Reduction of insulin peak leads to
 - less fat formation.
 - Less chance for development of prediabetes and Diabetes II.

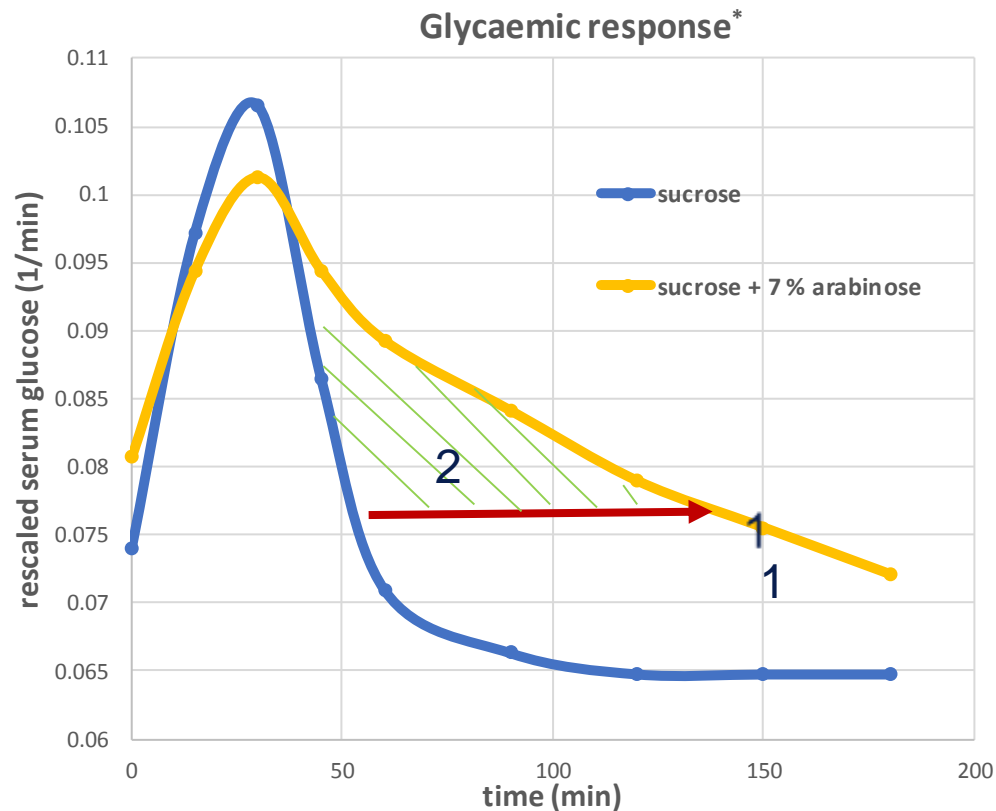
Sustained energy release



“Same amount of glucose is released to the blood over a longer period of time”

- Source: Proprietary glycaemic response testing results with sucrose & arabinose at Oxford Brookes University (2016). The actual serum glucose values were rescaled according to the method proposed by Vinoy (2017, *Nutrients*, 9, 318).

Sustained energy release



Explanation of advantages of Arabinose:

1. The time of energy release from the sucrose consumed is increased from 1 to 3 hours.
2. The quantity of energy released remains equal.

Product example: Fruit drink

Tropical fruit drink composition – equal to “Tesco brand”

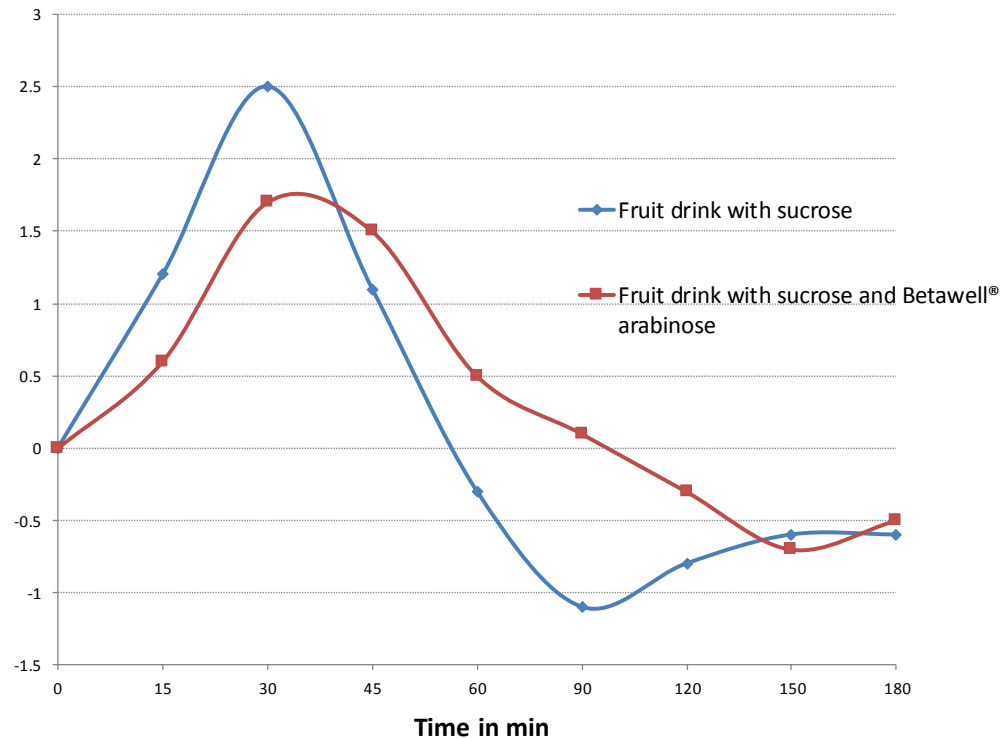
Ingredient	Brix	Reference	With betawell
Tropical base	41.0	29.74	29.74
Ascorbic acid	100.0	0.55	0.55
Orange juice concentrate	65.0	37.85	37.85
Passion fruit concentrate	50.0	0.05	0.05
Sugar syrup	67.0	109.43	98.49
Tri Sodium Citrate	100.0	2.00	2.00
Betawell	100.0	-	7.33
Isomaltulose	100.0	-	-

Required quantities in grams to produce 1 liter of drink
Source: Refresco

Fruit drink – glycemic response

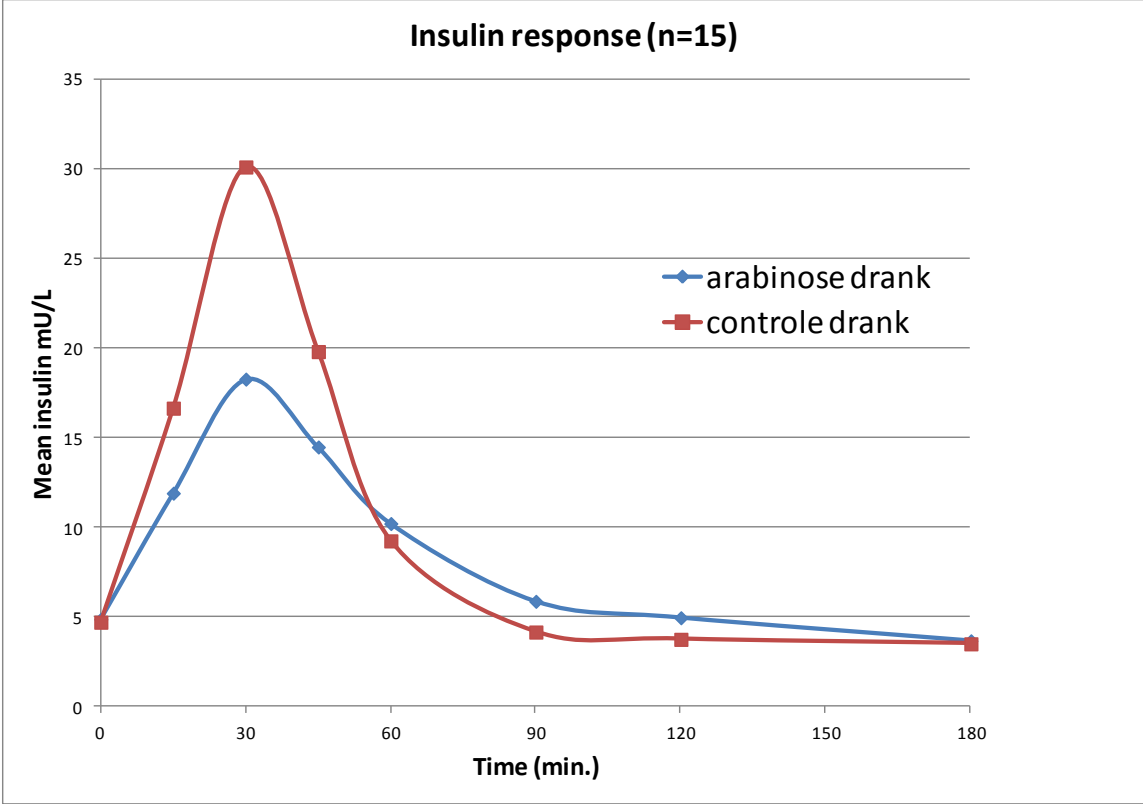
Glycemic response difference by replacing 10% of sucrose with Betawell®

Blood glucose concentration compared to baseline (in mmol/l)



Fruit drink – insulin response

Insulin response at 50 grams of available carbohydrate



Current status Arabinose

1. Small scale production is in place to produce product quantities for sampling and trial productions of products. Commercial scale production will be ready in June 2019.
2. Product will be commercially available from July 2019.
3. Novel food is expected in June 2019.
4. Clinical studies are being done with Wageningen University to confirm performance in products & caloric value, and with Maastricht University to confirm sustained energy effect.

inspired by inulin